EXHIBIT M5

WATER QUALITY MANAGEMENT PERMIT PUMP STATION NO. 3

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT



WATER QUALITY MANAGEMENT POST CONSTRUCTION CERTIFICATION

APPLICANT IDENTIFIER				
Permittee	Willistown Township			
Address	688 Sugartown Road, Malvern, PA 19355			
Municipality	Willistown Township			
County	Chester			
CERTIFICATION				
The following information must be completed and returned to the Permits Section of the DEP Regional Office issuing the WQM permit within 30 days of completion of the project and received by DEP prior to operation, along with as-built drawings, photographs (if available), and a discussion of any DEP-approved deviations from the design plans during construction. $PER = 4/29/13$ Letter - $PRE = Construction$				
I, DENNIS G. TRACEY, being a Registered Professional Engineer in accordance with the Pennsylvania Professional Engineer's Registration Law do hereby certify that the sewerage facilities approved under Water Quality Management Permit No. 1512405 (Pump Station No. 3 Upgrades) have been inspected and constructed in accordance with the plans and specifications approved by DEP.				
Construction Completion Date (MM/DD/YYYY):				
		Supervising Professional Engineer		
		Name Dennis G. Tracey		
		(Please Print or Type)		
		Signature Winns / rasey		
		Date 1/23/15		
		Title ProJ. MANAger		
	14 1	Firm or Agency Buchart HORN, INC		
		Telephone 856 - 797 - 4339		
Permittee's	Authorized Representative:	Principal Operator Information (For Sewage Facilities):		
Name	DAVID R. BURMAN	Name KENNETH E. HEYDT		
	(Please Print or Type)	(Please Print or Type)		
Signature	Janik R. Burn	Certification Number (if applicable) 59126		
Title Tow	NSHIP MANAGER	Class A, E 50Ba455 1, 2, 3, 4		
Telephone 610-647-5300		Туре		

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT



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I, DENNIS G. TRACEY , being a Registered Professional Engineer in accordance with the Pennsylvania Professional Engineer's Registration Law do hereby certify that the sewerage facilities approved under Water Quality Management Permit No. 1512405 (Pump Station No. 3 Upgrades) have been inspected and constructed in accordance with the plans and specifications approved by DEP.				
Construction Completion Date (MM/DD/YYYY): 10/22/2014				
		Supervising Professional Engineer		
		NameDennis G. Tracey		
		(Please Print or Type)		
		Signature Winns / rasey		
		Date //23//5		
		Title ProJ. MANAGET Firm or Agency Buchart HORN, INC		
	(· · ·	Firm or Agency Buchart HORN, INC		
		Telephone 856 - 797 - 4339		
Permittee's Authorized Representative:		Principal Operator Information (For Sewage Facilities):		
Name	DAVID R. BURMAN	Name KENNETH E. HEYDT		
	(Please Print or Type)	(Please Print or Type)		
Signature	Jan K. Bum	Certification Number (if applicable) 59126		
Title Jow	NSHIP MANAGER	Class A, E 30BCLASS 1, 2, 3, 4		
Telephone (10-647-5300	Туре		



RECEIVED
JUN 0 7 2012

WILLISTOWN TOWNSHIP

June 4, 2012

Mr. David R. Burman, Manager Willistown Township 688 Sugartown Road Malvern, PA 19355

Re:

Pump Station No. 3 Upgrades

Permit No. 1512405 File Type: Permit Willistown Township Chester County

Dear Mr. Burman:

Your permit is enclosed.

You must comply with all permit conditions attached to this permit. Construction must be done in accordance with the permit application and all supporting documentation. Please review the permit conditions and the supporting documentation submitted with your application before starting construction.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717.787.3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800.654.5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

RECEIVED

JAN 28 2015

WILLISTOWN TOWNSHIP

Southeast Regional Office | 2 East Main Street | Norristown, PA 19401-4915



IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717.787.3483) FOR MORE INFORMATION.

If you have any questions, please call Mr. James Roth at 484.250.5169.

Sincerely,

Jenifer Fields, P.E. Regional Manager Clean Water

Enclosures

cc: Chester County Health Department

Mr. Boggs, P.E. – ENTECH Engineering, Inc.

Operations Section Re (joh12clw)144-4 3800-PM-WSWM0015 Rev. 6/2004 Permit



COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WATER SUPPLY AND WASTEWATER MANAGEMENT

PERMIT NO. <u>1512405</u>
AMENDMENT NO
APSID <u>777690</u>

WATER QUALITY MANAGEMENT PERMIT

Willistown Township Chester County D. This permit approves sewage pumping station improvements consis increase the pump station's hydraulic capacity from 0.8 mgd to 1.2 m Pump Station: Pump Station No. 3 Design Capacity: 2,000 GPM Average Annual Flow: 1.2 MGD E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:	Willistown Township Sewer System SUB FACILITY (Name): Pump Station No. 3 ITE ID#: 255715 ting of: installing new pumps and pump controls to
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Average Annual Flow: 1.2 MGD Average E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:	
E. APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING:	Annual Flow: MGD
New Permits: All construction, operations, and procedures shall be in accordance.	
	ce with the Water Quality Management Permit Amendment , which are hereby made a part of this amendment.
Transfers: Water Quality Management Permit No dated and condipart of this transfer.	tions, supporting documentation and addendums are also made
 Permit Conditions Relating to Sewerage are attached and made part of this Special Conditions numbered are attached and made part of this permit. 	s permit.
THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWIN If there is a conflict between the application or its supporting documents and am shall apply.	
2. Failure to comply with the rules and regulations of DEP or with the terms or condiby the issuance of this permit.	tions of this permit shall void the authority given to the permittee
 This permit is issued pursuant to the Clean Streams Law Act of June 22, 1937, F permit shall not relieve the permittee of any responsibility under any other law. 	P.L. 1987, as amended 35 P.S. §691.1 et seq. Issuance of this
	iv:
June 4, 2012	TTLE: Clean Water Program Manager



COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WATER STANDARDS AND FACILITY REGULATION

PERMIT CONDITIONS RELATING TO SEWERAGE

For use in Water Quality Management Permits

(Place a $\sqrt{ }$ in the box that applies)

Ger	neral	
\boxtimes	1.	The Department of Environmental Protection's (DEP) considers the registered Professional Engineer whose seal is affixed to the design documents to be fully responsible for the adequacy of all aspects of the facility design.
	2.	The permittee shall adopt and enforce an ordinance requiring the abandonment of privies, cesspools or similar receptacles for human waste and onlot sewage disposal systems on the premises of occupied structures accessible to public sewers. All such structures must be connected to the public sewers.
	3.	The outfall sewer or drain shall be extended to the low water mark of the receiving body of water. Where necessary to ensure proper mixing and waste assimilation, an outfall sewer or drain may be extended with appurtenances below the low water mark and into the bed of a navigable stream provided that the permittee has secured an easement, right-of-way, license or lease from DEP in accordance with Section 15 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, as amended.
\boxtimes	4.	The approval is specifically made contingent on the permittee acquiring all necessary property rights, by easement or otherwise, providing for the satisfactory construction, operation, maintenance and replacement of all sewers or sewerage structures in, along or across private property with full rights of ingress, egress and regress.
	5.	When construction of the approved sewerage facilities is completed and before they are placed in operation, the permittee shall notify DEP in writing so that a DEP representative may inspect the facilities.
	6.	If, at any time, the sewerage facilities covered by this permit create a public nuisance, including but not limited to, causing malodors or causing environmental harm to waters of the Commonwealth, DEP may require the permittee to adopt appropriate remedial measures to abate the nuisance or harm.
	7.	If, after the issuance of this permit, DEP approves a municipal sewage facilities official plan or an amendment to an official plan under Act 537 (Pennsylvania Sewage Facilities Act, the Act of January 24, 1966, P.L. 1535 as amended) in which sewage from the herein approved facilities will be treated and disposed of at other planned facilities, the permittee shall, upon notification from the municipality or DEP, provide for the conveyance of its sewage to the planned facilities, abandon use and decommission the herein approved facilities including the proper disposal of solids, and notify DEP accordingly. The permittee shall adhere to schedules in the approved official plan, amendments to the plan, or other agreements between the permittee and municipality. This permit shall then, upon notice from DEP, terminate and become null and void and shall be relinquished to DEP.
\boxtimes	8.	This permit does not relieve the permittee of its obligations to comply with all federal, interstate, state or local laws, ordinances and regulations applicable to the sewerage facilities.
\boxtimes	9.	This permit does not give any real or personal property rights or grant any exclusive privileges, nor shall it be construed to grant or confirm any right, easement or interest in, on, to or over any lands which belong to the Commonwealth.
	10.	The authority granted by this permit is subject to all effluent requirements, monitoring requirements and other conditions as set forth in NPDES Permit No. PA and all subsequent amendments and renewals. No discharge is authorized from these facilities unless approved by an NPDES Permit.
Coi	nstru	ction
	11.	An Erosion and Sedimentation (E&S) Plan must be developed prior to construction of the permitted facility, pursuant to Title 25 Pa. Code Chapter 102, and implemented during and after the earth disturbance activity.
		If the activity involves 5 or more acres of earth disturbance, or from 1 to 5 acres of earth disturbance with a point source discharge to surface waters of the Commonwealth, an NPDES permit for the Discharge of Stormwater Associated with Construction Activity is required.
		In addition to the state NPDES permitting requirements, some municipalities, through local ordinances, require

requirements, please contact your local County Conservation District office.

the E&S Control Plan to be reviewed and approved by the local County Conservation District office prior to construction. For specific information regarding E&S control planning approval and NPDES permitting

	14.	accordance with the approved reports, plans and specifications.
	13.	A Pennsylvania registered Professional Engineer shall certify that construction of the permitted facilities was completed in accordance with the application and design plans submitted to DEP, using "Post Construction Certification" (3800-PM-WSFR0179a). It is the permittee's responsibility to ensure that a Professional Engineer is on-site to provide the necessary oversight and/or inspections to certify the facilities. The certification must be submitted to DEP before the facility is placed in operation. If requested, "as-built" drawings, photographs (if available) and a description of any DEP-approved deviations from the application and design plans must be submitted to DEP within 30 days of certification.
	14.	Manhole inverts shall be formed to facilitate the flow of the sewage and to prevent the stranding of sewage solids. The manhole structure shall be built to prevent undue infiltration, entrance of street wash or grit and provide safe access to facilitate manhole maintenance activities.
	15.	The local Waterways Conservation Officer of the Pennsylvania Fish and Boat Commission (PFBC) shall be notified when the construction of any stream crossing and/or outfall is started and completed. A written permit must be secured from the PFBC if the use of explosives in any waterways is required and the permittee shall notify the local Waterways Conservation Officer when explosives are to be used.
Оре	eratio	n and Maintenance
	16.	The permittee shall maintain records of "as-built" plans showing all the treatment facilities as actually constructed together with facility operation and maintenance (O&M) manuals and any other relevant information that may be required. Upon request, the "as-built" plans and O&M manuals shall be filed with DEP.
	17.	The sewers shall have adequate foundation support as soil conditions require. Trenches shall be back-filled to ensure that sewers will have proper structural stability, with minimum settling and adequate protection against breakage. Concrete used in connection with these sewers shall be protected from damage by water, freezing, drying or other harmful conditions until cured.
	18.	Stormwater from roofs, foundation drains, basement drains or other sources shall not be admitted directly to the sanitary sewers.
	19.	The approved sewers shall be maintained in good condition, kept free of deposits by flushing or other cleaning methods and repaired when necessary.
\boxtimes	20.	The sewerage facilities shall be properly operated and maintained to perform as designed.
	21.	The attention of the permittee is called to the highly explosive nature of certain gases generated by the digestion of sewage solids when these gases are mixed in proper proportions with air and to the highly toxic character of certain gases arising from such digestion or from sewage in poorly ventilated compartments or sewers. Therefore, at all places throughout the sewerage facilities where hazard of fire, explosion or danger from toxic gases may occur, the permittee shall post conspicuous permanent and legible warnings. The permittee shall instruct all employees concerning the aforesaid hazards, first aid and emergency methods of meeting such hazards and shall make all necessary equipment and material accessible.
	22.	An operator certified in accordance with the Water and Wastewater Systems Operator Certification Act of February 21, 2002, 63 P.S. §§1001, et seq. shall operate the sewage treatment plant.
	23.	The permittee shall properly control any industrial waste discharged into its sewerage system by regulating the rate and quality of such discharge, requiring necessary pretreatment and excluding industrial waste, if necessary, to protect the integrity or operation of the permittee's sewerage system.
	24.	There shall be no physical connection between a public water supply system and a sewer or appurtenance to it which would permit the passage of any sewage or polluted water into the potable water supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.
	25.	All connections to the approved sanitary sewers must be in accordance with the corrective action plan as contained in the approved Title 25 Pa. Code Chapter 94 Municipal Wasteload Management Annual Report.
\boxtimes	26.	Collected screenings, slurries, sludge and other solids shall be handled and disposed of in compliance with Title 25 Pa. Code Chapters 271, 273, 275, 283 and 285 (related to permits and requirements for land filling, land application, incineration and storage of sewage sludge), Federal Regulations 40 CFR 257 and the Federal Clean Water Act and its amendments

Re 30 (joh12elw)144-4b



April 29, 2013

Mr. Keith Dudley
PA DEP
Southeastern Regional Office
Water Quality Management
2 East Main Street
Norristown, PA 19401-4915

Re: Permit No. 1512405

Pumping Station #3 Upgrade Willistown Township, PA

Dear Keith:

Enclosed is a copy of the updated plans and capacity-related technical specifications for the proposed upgrade for the Willistown Township Pumping Station #3. As previously discussed the proposed capacity of the station remains the same as previously approved at 1.2 mgd (average) and 2.88 mgd (instantaneous peak), but the changes are to better meet the low flow conditions at the station and for constructability reasons. The changes are as follows:

- 1. There will be three (3) smaller pumps installed instead of the previously approved two (2) pump installation with larger pumps. Under this 3 small pump arrangement, a maximum of two (2) pumps can operate and the third pump will act as a standby or back up pump. With two (2) new pumps operating the station will have a combined capacity of 2,000 gpm, at 263 feet TDH (same capacity as previously approved). However, a single smaller pump can also operate at a lower flow rate to allow more uniform pumping at the low flow conditions (e.g.-single pump at 50% speed can pump as low as 500 gpm). Also the three (3) pumps are physically smaller than the two (2) large pumps previously proposed and will better fit into the existing station and require fewer structural changes; and will be easier to remove for maintenance. To accommodate the third pump the following are necessary.
 - a. A third VFD will be installed.
 - b. A new triplex pump controller to be operated in Duplex Mode.
 - c. Suction and discharge piping modifications to accommodate the third pump.

- 2. Other associated changes are being added to accommodate better operation and maintenance of the station. These include the following:
 - a. Modify the floor openings for pump placement and future removal.
 - b. Replacement of existing ventilation blowers.
 - c. Modify/Replace access doors to better accommodate equipment access and removal.

None of these changes affect the previously approved capacity of the station or should materially effect permitted approval. Therefore, as discussed a formal revised permit approval should not be required but we wanted to advise the PADEP of the proposed design changes.

If you have any questions or need any additional information please feel free to contact me or Dennis Tracey of this office.

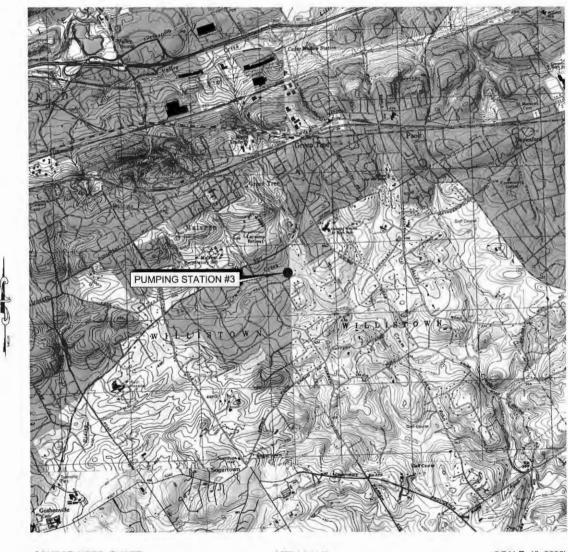
Very truly yours, BUCHART- HORN, INC.

Edward J. Di Mond, P.E. Director of Environmental

c: file 76925-00

WILLISTOWN TOWNSHIP SEWAGE PUMPING STATION UPGRADE WILLISTOWN PUMPING STATION #3

WILLISTOWN TOWNSHIP, PENNA.



INDEX OF DRAWINGS

SHEET G01: GENERAL NOTES, LEGENDS AND SYMBOLS

SHEET C01: SEWAGE PUMPING STATION LOCATION & SITE PLAN

SHEET C02: DEMO PLAN

SHEET C03: PROPOSED PLAN AND SECTION

SHEET E01-E05: ELECTRICAL SHEETS

SHEET D01: DETAIL SHEET

AS CONSTRUCTED PLANS BASED ON INFORMATION SUPPLIED BY THE INSTALLING CONTRACTORS (C&T ASSOCIATES - GENERAL, AND PHILIPS BROS. - ELECTRICAL). THERE IS NO WARRANTY OF DIMENSIONAL ACCURACY. THESE DRAWINGS MAY NOT BE UTILIZED FOR NEW CONSTRUCTION OR RECONSTRUCTION WITHOUT PRIOR WRITTEN APPROVAL OF BUCHART HORN, INC. UPON TERMS AND CONDITIONS ACCEPTABLE TO OWNER AND ENGINEER.

SOURCE: USGS QUAD (VALLEY FORGE, PA.)

KEY MAP

SCALE: 1"=2000"

MAY 2014
RECORD DRAWINGS

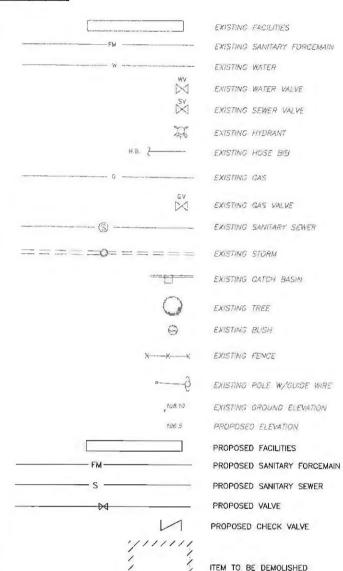
DENNIS TRACEY

PE0448885E

Buchart-Horn, Inc. 2 Eves Drive, Suite 110 Marlton, New Jersey 08053

DI,76925-00\CADD\RECORD\000CUVER.dwg, 10/2/20

LEGEND:



REFERENCE NOTES:

- 1) KEY MAP, USGS VALLEY FORGE, PA AND MALVERN, PA QUADS.
- 2) THE EXISTING INFORMATION SHOWN FOR THIS DRAWING WAS BASED ON RECORD PLANS PREPARED BY GEORGE B. MEBUS, INC. DECEMBER 1971 AND PLANS PREPARED BY YERKES ASSOCIATES, INC., TITLED PUMPING STATION #3 UPGRADES, DATED NOVEMBER 2008.

111111111

DATUM NOTE:

ELEVATIONS SHOWN ARE BASED ON: VERTICAL, NAV 1929

NOTES:

- 1) AVAILABLE INFORMATION AS TO THE LOCATION OF EXISTING SUBSTRUCTURES AND UTILITIES HAS BEEN COLLECTED FROM VARIOUS SOURCES AND MAY NOT BE ACCURATE, ALL EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL DIG TEST PITS AS REQUIRED TO VERIFY TRUE AND EXACT LOCATIONS OF UNDERGROUND LINES.
- 2) THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES A MINIMUM OF 72 HOURS PRIOR TO EXCAVATION, AND SHALL COMPLY WITH ALL CURRENT MARKOUT REQUIREMENTS OF THE PENNSYLVANIA
- 3) THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS OF THE "HIGH VOLTAGE PROXIMITY ACT".
- 4) THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL EXCESS EXCAVATED MATERIAL TO AN APPROVED OFF-SITE LOCATION AT NO ADDITIONAL COST TO THE OWNER.
- 5) ALL CONSTRUCTION ACTIVITIES ARE TO BE CONFINED TO THE PUBLIC RIGHT-OF-WAY OR TO OWNER'S EASEMENTS AND/OR PROPERTY.
- 6) PRIOR TO CONNECTION TO, OR RELOCATION OF ANY EXISTING FACILITIES, THE CONTRACTOR SHALL NOTIFY THE OWNER. THE CONTRACTOR SHALL COORDINATE THE NECESSARY SHUTDOWN OF ANY EXISTING FACILITY WITH THE OWNER. ALL CONNECTIONS TO EXISTING FACILITIES SHALL BE DONE AT THE
- 7) CONTRACTOR SHALL TAKE STEPS NECESSARY TO PROTECT EXISTING CURB AND PAVING AND MINIMIZE THE LENGTH OF THE CURBING AND PAVING THAT MUST BE REPLACED.
- 8) ROADWAY, CURB AND SIDEWALK RESTORATION WORK SHALL BE PERFORMED TO THE SATISFACTION OF THE GOVERNING AGENCY.
- 9) THE CONTRACTOR SHALL INCLUDE AND BE RESPONSIBLE FOR ARRANGING ACCESS TO THE WORK LOCATIONS AND FOR ADDITIONAL LAND REQUIRED FOR STAGING AND STORAGE DURING CONSTRUCTION.

- 10) THE CONTRACTOR SHALL ARRANGE TO HAVE THE CONDITIONS ON AND CLOSE TO THE PUMPING STATION SITE PROFESSIONALLY VIDEOED, PRIOR TO AND AFTER CONSTRUCTION IN THE EVENT THAT A DISPUTE ARISES IN REGARDS TO DAMAGE DONE TO PROPERTY DURING CONSTRUCTION.
- 11) THE CONTRACTOR SHALL PROTECT ANY PROPERTY AND EXISTING STRUCTURES IN THE WORK AREA DURING CONSTRUCTION AND SHALL REPAIR AND REPLACE ANY DAMAGE TO STRUCTURES WHICH SHALL REMAIN IN KIND, AT NO ADDITIONAL COST TO THE OWNER.
- 12) THE CONTRACTOR SHALL RESTORE ALL STRUCTURES, FENCES, PAVEMENTS, CURBS, SOFTSCAPE ETC., THAT ARE AFFECTED BY THE PROPOSED CONSTRUCTION AT NO ADDITIONAL
- 13) THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ADEQUATE MEASURES TO PREVENT SOIL EROSION AND SEDIMENTATION IN ACCORDANCE WITH THE LOCAL SOIL CONSERVATION DISTRICT REQUIREMENTS. AREAS PRONE TO EROSION MUST BE PROTECTED DURING CONSTRUCTION AND RESTORED TO PRE CONSTRUCTION CONDITION UPON COMPLETION
- 14) CONTRACTOR SHALL VISIT AND EXAMINE THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH THE WORK PROPOSED UNDER THIS CONTRACT.
- 15) ANY PAVEMENT RESTORATION SHALL BE PERFORMED IN ACCORDANCE WITH TOWNSHIP REQUIREMENTS AS APPLICABLE.
- 16) UNLESS OTHERWISE SPECIFICALLY PERMITTED, NO WORK SHALL BE DONE BETWEEN THE HOURS OF 7:00 PM TO 6:00 AM, PREVAILING TIME. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL LOCAL AND STATE LAWS GOVERNING HOURS DURING WHICH CONSTRUCTION EQUIPMENT MAY BE OPERATED
- 17) THE CONTRACTOR IS CAUTIONED THAT ALL WATER, SANITARY SEWER, AND UTILITY SERVICES HAVE NOT BEEN LOCATED. WHEN CONTRACTOR ENCOUNTERS AN OBSTRUCTION HE SHALL NOTIFY ENGINEER AND AFFECTED UTILITY OWNER.

WILLISTOWN TOWNSHIP PUMPING STATION #3 CONTRACT 2013-01

76925-0 CAD FILE: 00001 d ENGR./ARCH.: DGT DESIGN BY: DGT DRAWN BY: DS CHECKED BY: EJD

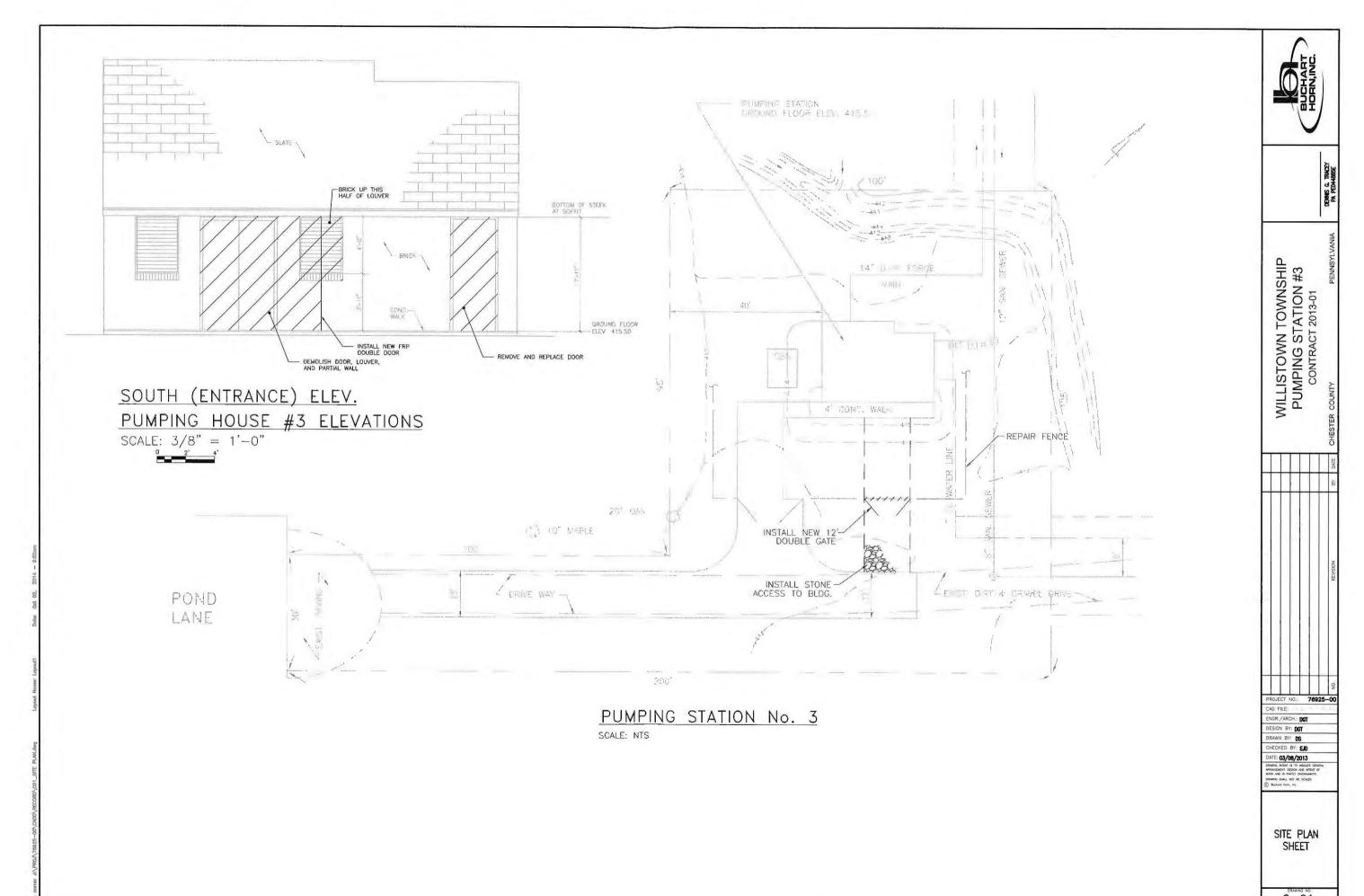
GENERAL NOTES, LEGEND, & SYMBOLS

DATE:03/08/2013 SRAWNS INTENT IS TO INDICATE CENER APPRAISEDENT, DESIGN AND INTENT OF WORK AND IS PARTLY DIAGRAMMATIC. DRAWNS SHALL NOT BE SCALED BUCKET HOM, INC.

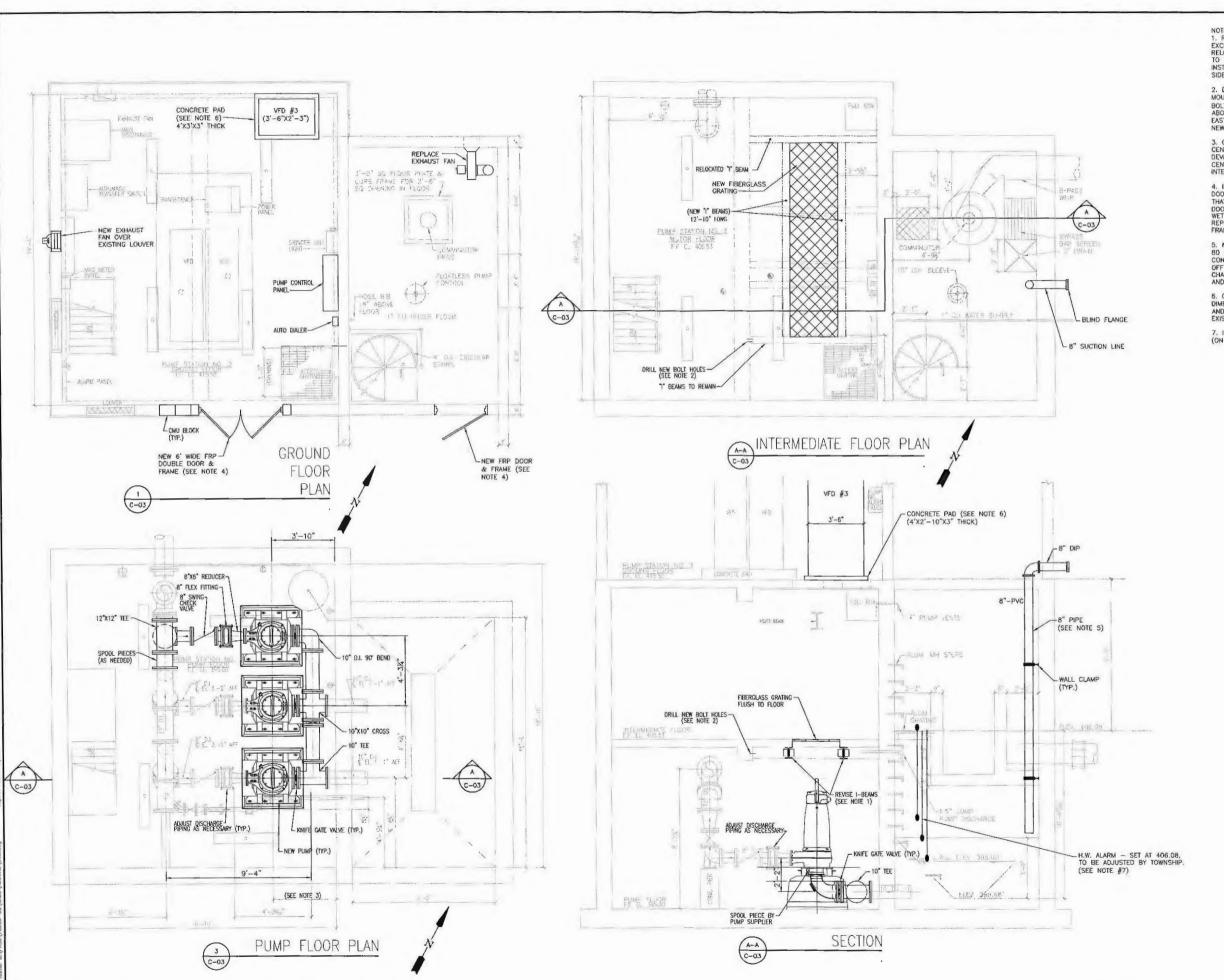
G - 01

ABBREVIATIONS:

APX	APPROXIMATELY
AVG	AVERAGE
CI	CAST IRON
Ğ	CENTERLINE
CONC	CONCRETE
CMU	CONCRETE MASONARY UNIT
CPL	COUPLING
CU	COPPER
DISCH	DISCHARGE
DIP	DUCTILE IRON PIPE
EL.	ELEVATION
ELEV.	ELEVATION
EX	
FCA	EXSTING FLANGED COUPLING ADAPTER
FL	FLANGED
FM	FORCE MAIN
GAL	GALLON
HB	HOSE BIB
HHWL	HIGH HIGH WATER LEVEL
HTR	HEATER
HWL	HIGH WATER LEVEL
ID	INSIDE DIMENSIONS
INV.	INVERT
LWL	LOW WATER LEVEL
MECH	MECHANICAL
LM	MECHANICAL JOINT
NO.	NUMBER
NTS	NOT TO SCALE
POT	POTABLE
PROP	PROPOSED
PVC	POLY VINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
R/W	RIGHT OF WAY
SQ	SQUARE
SS	STAINLESS STEEL
STL	STEEL
SW	SEAL WATER
TOP	TOP OF PIPE
TYP.	TYPICAL
WL	WATER LEVEL
ww	WALKWAY



DWG STATUS (RECORD)



NOTES:

1. REMOVE ALL STEEL "1" BEAMS
EXCEPT THE SOUTH MOST BEAM.
RELOCATE ONE OF THE LONG BEAMS
TO NEW, NORTHMOST LOCATION, AND
INSTALL NEW "1" BEAMS ALONG EACH
SIDE OF THE OPENING.

2. DRILL TWO (2) NEW BOLT HOLES IN MOUNTING PLATE AND INSTALL NEW BOLTS ()"X4", OR MATCH EXISTING)
ABOVE REBAR CAGE FOR BOTH
EAST/WEST BEAMS, AND INSTALL TWO
NEW, LONG BEAMS CONNECTING.

3. CONTRACTOR TO INSURE THAT CENTERLINE OF NEW PUMPS DOES NOT DEVIATE MORE THAN 1"# FROM CENTERLINE OF HOIST BEAM ON INTERMEDIATE LEVEL.

4. INSTALL NEW 6' WIDE FRP DOUBLE DOOR AND FRAME WITH LINTEL ABOVE THAT EXTENDS 8"± ETHER SIDE OF DOOR FRAME ALSO, REMOVE EXISTING WET WELL DOOR AND FRAME AND REPLACE WITH NEW FRP DOOR AND FRAME OF SAME SIZE.

5. NEW 8" SUCTION LINE CAN BE SCH.
80 PVC FROM MAIN FLOOR DOWN.
CONNECT W/ MEGALUGS AND SUPPORT
OFF THE EAST, WET WELL WALL.
CHANGE TO DIP FOR VERTICAL SECTION
AND BLIND FLANGE OUTSIDE.

CONTRACTOR TO VERIFY PAD DIMENSIONS TO ACCOMMODATE VFD #3; AND LOCATE TO ALLOW USE OF EXISTING FLOOR PENETRATIONS.

7. INSTALL THREE FLOAT SWITCHES (ON-OFF-ALARM).

WILLISTOWN TOWNSHIP PUMPING STATION #3 CONTRACT 2013-01

PROJECT NO.: 76925-0 CAD FILE:

ENGR. /ARCH.: DGT DESIGN BY: DGT DRAWN BY: DS

CHECKED BY EN DATE: 03/08/2013

PUMPING STATION

PROPOSED PLANS AND SECTIONS

C - 03SHEET 05 OF 11

ELECTRICAL AND CONTROL SYSTEM ABBREVIATIONS - AMPERES - ALTERNATING CURRENT - ABOVE FINISHED FLOOR - ABOVE FINISHED GRADE - ALUMINUM - AUXILIARY - BELOW FINISHED GRADE - BREAKER - BUILDING - CONDUIT - CABLE AND CONDUIT - CIRCUIT BREAKER - CLARRIER - CONTROL PANEL ALUM AUX B.F.G. BKR BLDG C&C CB CLAR. CP D.C. O.O. D.S. DTSP DWG EC EGC EXIST. CONTROL PANEL OEEP DIRECT CURRENT DISSOLVED OXYGEN DISSONNECT SWITCH RS-485 MODBUS CABLE DRAWING LIVAMING ELECTRICAL CONTRACTOR EOUIPMENT GROUNDING CONDUCTOR EXISTING - Existing - Fuse - Fuse - Fallure - Full Load Amps - Full Load Swest - Fused Safety Switch - Ground - Ground - Ground - Ground - High - Hand-off-auto - Horsepower - Hydraulics System Center - Horizontal Unit Heater - Instrumentation INPUT/OUTPUT - KILOWATT - MANUAL - AUTO - MILLAMP - MAGNETIC - MECHANICAL CONTRACTOR - MOTOR CONTROL CENTER INPUT/OUTPUT L/R M/A MAG MCC MCCP MDS MOP MOD MOD MOD MOD MOD MOD MOD MOD MOD MS MANHOLE MOTOR OPERATED OAMPER MOTOR OPERATED GATE MOTOR OPERATED VALVE MOTOR STARTER - MOTOR STARTER - NEUTRAL - NON-FUSED SAFETY SWITCH - NUMBER - OPEN-CLOSE - OPEN-CLOSE-AUTO - OVERLOADS NFSS NO. 0/C 0/C/A OLs OVERLOADS POLE PUSHBUTTON PROCESS CONTROL SYSTEM PROCESS CONTROL SYSTEM SUPPLIER POWER DISTRIBUTION CENTER POWER DISTRIBUTION PAVEL PROGRAMMABLE LOGIC CONTROLLER PROGRAMMABLE LOGIC CONTROLLER PHASE PROGRAMMABLE MESSAGE DISPLAY POSITION POWER ROOF EXHAUSTER PRESSURE PRIMARY PUSH TO TEST PAN JULY ZOOM (CAMERA) - Push to test Pan, Tilt, Zoom (Camera) - Return Activated Sluoge - Recirculation - Rigid Calvanized Steel - Rigid Steel - SYSTEM CONTROL CENTER - SCHEDUGE - SCONDARY SHIELDED SOLID NEUTRAL SURGE PROTECTIVE DEVICE START-STOP STAINLESS STEEL SWITCH TO BE REMOVED THERMAL MAGNETIC TEMPERATURE TWISTED SHIELDED PAIR TWISTED SHIELDED ... TYPICAL UNLESS OTHERWISE NOTED UNINTERRUPTIBLE POWER SUPPLY ULTRASONIC ULTRAVIOLET UTUTY WATER PUMP VARIABLE FREQUENCY DRIVE VERTICAL UNIT HEATER - VERTICAL ONLY HEATER - WASTE ACTIVATED SLUDGE - WALL INSERT HEATER - WEATHERPROOF - TRANSFORMER - TRANSMITTER

ELECTRICAL SYMBOLS LIGHTING CEILING SURFACE LIGHT FIXTURE 0 0

 \odot \Box CEILING PENDANT $\triangle \Diamond \Box$ WALL MITD \Box CEILING SURFACE MTD LIGHT FIXTURE CONNECTED TO **4** CEILING RECESSED NORMAL / EMERGENCY CIRCUIT **O** CEILING PENDANT **△ ♀** 📮 WALL MTD

0 🔽 LIGHT FIXTURE WITH EMERGENCY BALLAST CEILING SURFACE MITD 0 🛂 CEILING RECESSED 0 🔀 CEILING PENDANT a Q 📮 WALL MITO

S S S

EXIT SIGN W/DIRECTIONAL ARROW

ÉMERGENCY LIGHTING UNIT — BATTERY TYPE WITH NUMBER OF HEADS AS INDICATEO EMERGENCY LIGHTING UNIT — REMOTE HEAD WITH NUMBER OF HEADS AS INDICATED

COMBINATION SITE LIGHT MOUNTED ON POLE WITH RECEPTACLE, SEE DETAIL ON DRAWING E-59

WIRING DEVICES

SWITCH - SINGLE POLE SWITCH - THREE-WAY SWITCH - FOUR-WAY SWITCH - DIMMER SWITCH - FLUORESCENT DIMMER SWITCH - PIR OCCUPANCY SENSOR WITH PUSHBUTTON SWITCH - DUAL TECHNOLOGY OCCUPANCY SENSOR WITH 1 PUSHBUTTON SWITCH - DUAL TECHNOLOGY OCCUPANCY SENSOR WITH 2 PUSHBUTTON FOR DUAL CONTROL \$ OCCUPANCY SENSOR - WALL MID -\$^F OCCUPANCY SENSOR - WALL MID, DIRECTIONAL OCCUPANCY SENSOR - CEILING MITD **-**(\$)[™] OCCUPANCY SENSOR - CEILING MTD, DIRECTIONAL MOUNT (ADJUSTABLE VIEWING ANGLE) THE LETTER ADJACENT TO THE SYMBOL INDICATES PREFERRED SENSOR TYPE. WHERE SENSOR SYMBOL IS SHOWN WITHOUT IDENTIFICATION, PROVIDE PIR FOR WALL TYPES AND DT FOR CEILING TYPES. DT - DUAL TECHNOLOGY (COMBINATION PIR & US) ER - EXTENDED RANGE HB - HIGHBAY HB - HIGHBAY
HH - HIGH HUMIOITY / LOW TEMPERATURE
HW - HALLWAY
PIR - PASSIVE INFRARED
R - RELS
US - ULTRASONIC OR MICROPHONIC
WP - WEATHERPROOF
WV - WIDE VIEW

PHOTO SENSOR - WALL MITD (MOUNTED ON NORTH FACE OF BUILDING) PHOTO SENSOR -- CEILING MTD

WIRING DEVICES CONTINUED

CLG FLOOR WALL RECEPTACLE -- SINGLE RECEPTACLE - DUPLEX RECEPTACLE - DOUBLE DUPLEX RECEPTACLE - GFCI RECEPTACLE - GFCI DOUBLE DUPLEX RECEPTACLE - WEATHERPROOF RECEPTACLE - HEAVY DUTY SINGLE PHASE 250V, RATED AS NOTED LETTER "C" ADJACENT TO SYMBOL INDICATES RECEPTACLE ABOVE COUNTER CLG FLOOR WALL

▼ VOICE/DATA OUTLET - BLANK OATA OUTLET - BLANK

TELEPHONE (VOICE) OUTLET - BLANK TELEPHONE OUTLET — LETTER 'W'
ADJACENT TO SYMBOL INDICATES OUTLET
FOR WALL HUNG PHONE T.

NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF ACTIVE PORTS: 2, 4, 6 OR 8

LETTER "C" ADJACENT TO SYMBOL INDICATES OUTLET ABOVE COUNTER

▼ LETTER "F" ADJACENT TO SYMBOLINDICATES FIBER OPTIC OUTLET

OUTLIEF

POWER DISTRIBUTION

0 MOTOR MT MANUAL MOTOR TOGGLE SWITCH, NEMA 4X U.O.N. \Box DISCONNECT SWITCH, 3 POLE, 30A, 6DDV U.O.N, $\mathbb{F}^{\mathfrak{p}}$ \sum 1 COMBINATION MOTOR STARTER / DISCONNECT, 3 POLE ① THERMOSTAT (J) JUNCTION BOX MANUAL STARTER SWITCH PANEL BOARD, SIZED SHOWN ON DRAWINGS AND AS LISTED IN SCHEDULES Т TRANSFORMER, SIZED AS SHOWN ON DRAWINGS EMERGENCY STOP PUSHBUTTON GROUND LEAD TO GROUND ROD OR LOOP AS ENCOUNTERED DUCTRANK

→

POWER CABLE HOME RUN TO PANEL / MCC CIRCUIT - EQUIPMENT ON SAME CIRCUIT BUT CONTROLLED / SWITCHED DIFFERENTLY

→ (#) ANALOG CABLE(S) — # INDICATES NO. OF 2/C #16 TSP CABLES IN 3/4 $^{\circ}\text{C}$ U.O.N. COMDUTS TO/FROM SAME AREA MAY BE COMBINED; EC TO CONFORM TO NEC FOR CONDUIT SIZES

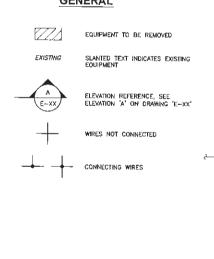
DIGITAL SIGNAL WIRING - # INDICATES NO. OF #14 WIRES, INCLUDING A #14 GRD. IN 3/4°C U.O.N. (WIRES NOT USED ARE SPARES). CONQUITS TO/FROM SAME AREA MAY BE COMBINED; EC TO CONFORM TO NEC FOR CONDUIT SIZES. 244 AND 120V SHALL BE SEPARATED INTO INDIVIDUAL CONQUITS. -(#)

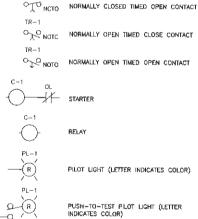
PROCESS DEVICES

[SS-1	
LE	ms]	BOWL TEMPERATURE SWITCH)	THREE POSITION SELECTOR SWITCH (X INDICATES CLOSED POSITION)
М	oG	MOTOR OPERATED GATE	O O x00	,
м	OV	MOTOR OPERATED VALVE	O O 60x	
м	OD	MOTOR OPERATED DAMPER	PB-1	NORMALLY OPEN PUSH BUTTON
k	4M	MAGNETIC FLOW METER	O O PB-1	THOMBELL OF EN POST BOTTON
ν	FM	VENTURI FLOW METER TRANSMITTER	مله	NORMALLY CLOSED PUSH BUTTON
F	LS	FLOODING LEVEL SENSOR	PB-1	
С	าร	CABINET TEMPERATURE SWITCH	\circ L \circ	NORMALLY CLOSED EMERGENCY STOP PUSH BUTTON
0	LS	OIL LEVEL SWITCH	FLW-1	
ŝ	P	SEAL LEAK PROBE	2	NORMALLY OPEN FLOW SWITCH
S	PD	SURGE PROTECTIVE DEVICE	FLT-1 O-r0	NORMALLY CLOSED FLOAT SWITCH
C	GS	COMBUSTIBLE GAS SENSOR/TRANSMITTER	ото О PS-1	Notaries dedaed reard annum
F	2	AIR FLOW SWITCH	0-0	NORMALLY OPEN PRESSURE SWITCH
R	L	RADAR LEVEL PROBE	∆ TS−1	
U	L	ULTRASONIC LEVEL PROBE	0.70	NORMALLY CLOSED TEMPERATURE SW
s	L	SUBMERSIBLE LEVEL PROBE	LS-1	
Ĺ	s	LEVEL SWITCH (FLOAT)	00	NORMALLY OPEN LIMIT SWITCH
P	S	PRESSURE SWITCH	CR-1	NORWALLY OPEN CONTACT
P	T	PRESSURE TRANSMITTER	CR-1	
s	М	SUCTION MONITOR	#	NORMALLY CLOSED CONTACT
5	3	SOLENOID VALVE	TR-1	
Z	s	ZERO SPEED SWITCH	OTO NOTO	NORMALLY CLOSED TIMED CLOSE CON
Ε	L	EMERGENCY STOP LANYARD	TR-1 OTO NOTO	NORMALLY CLOSED TIMED OPEN CONT

GENERAL

MOTOR THERMOSTAT

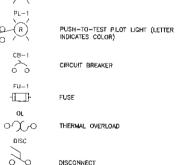


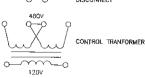


SWITCH

CONTACT

WIRING DIAGRAM







WILLISTOWN TOWNSHIP PUMPING STATION #3 CONTRACT 2013-01

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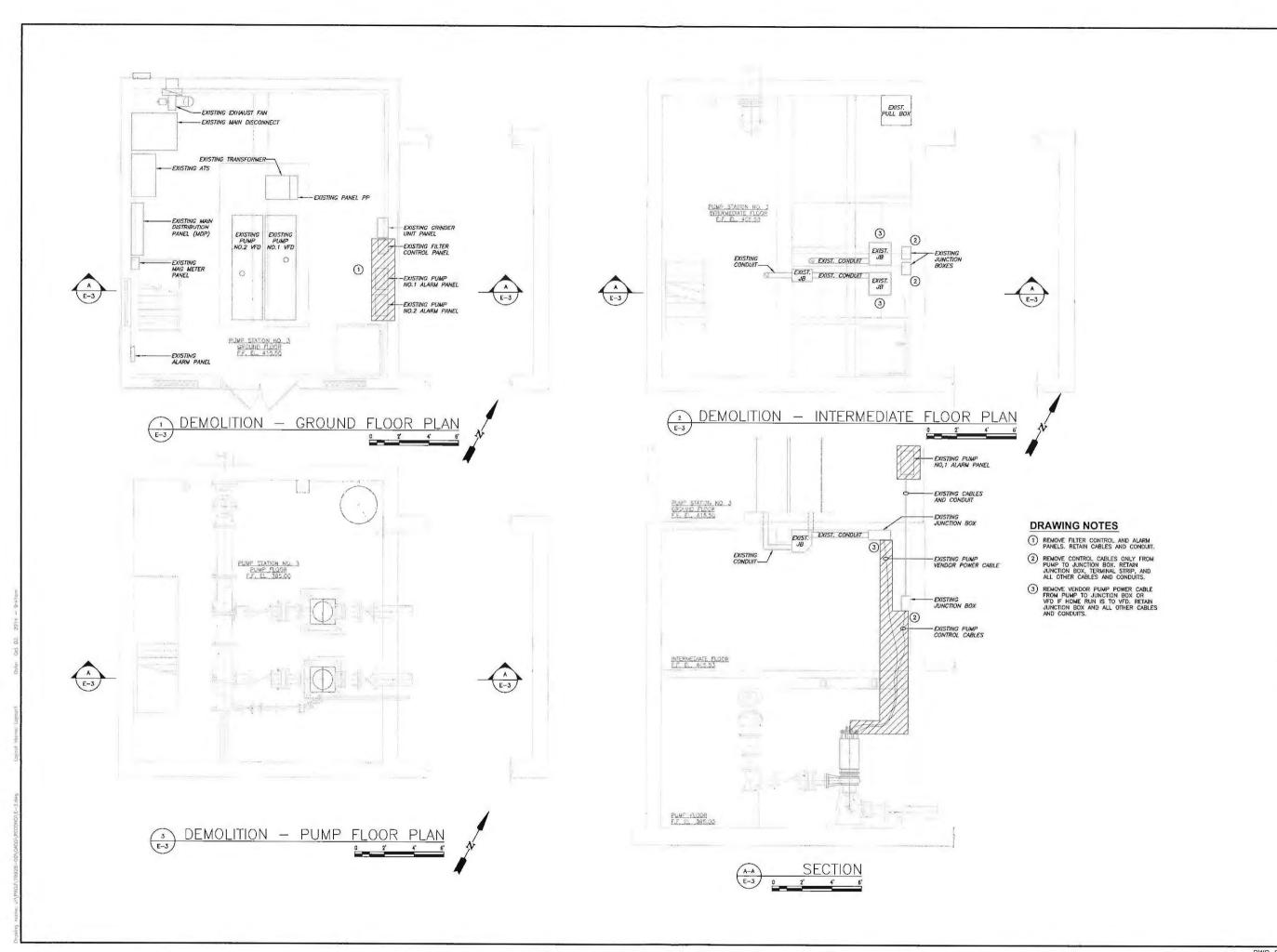
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PROMISE MITCH IS TO RECENT GENERAL MENUGUENT. DESCRIPTION OF THE MENUGUENT OF THE MEN

ELECTRICAL ABBREVIATION AND SYMBOL SHEET

SHEET 06 OF 11

E-1



BUCHART HORN,INC.

CHARLES J. MURPHY

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WILLISTOWN TOWNSHIP PUMPING STATION #3 CONTRACT 2013-01

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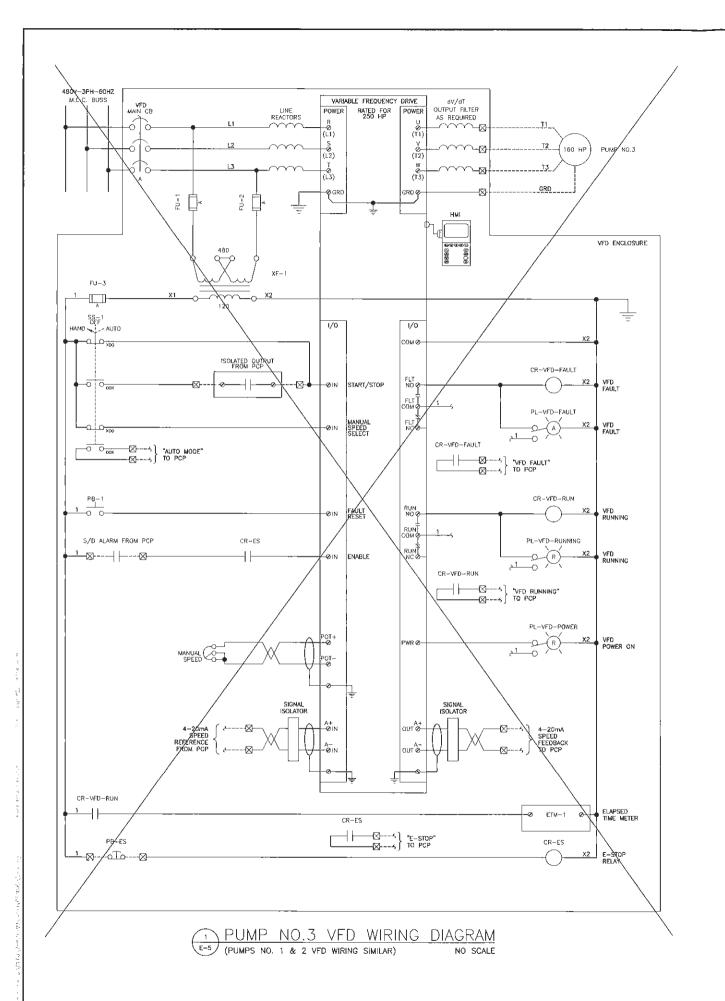
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E-3
SHEET 08 OF 11

DWG STATUS (RECORD)



BUCHART HORN,INC.

WILLISTOWN TOWNSHIP PUMPING STATION #3 CONTRACT 2013-01

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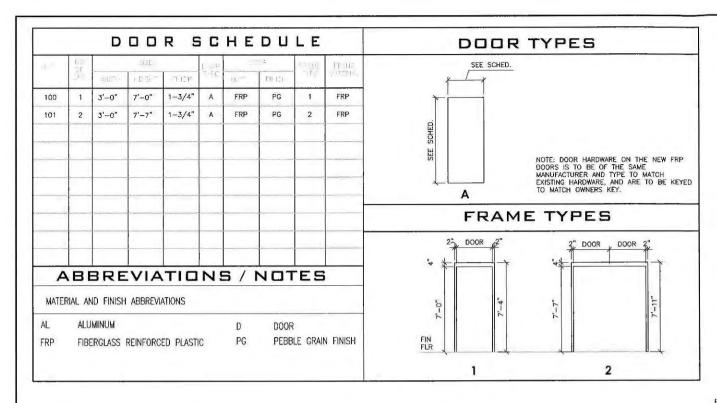
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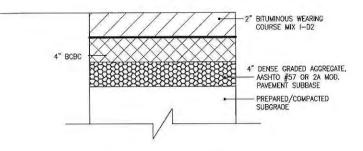
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PUMP NO.3 VFD WIRING DIAGRAM

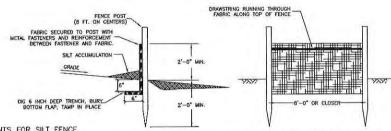
E-5





DRIVEWAY PAVEMENT REPAIR DETAIL

NOT TO SCALE



REQUIREMENTS FOR SILT FENCE

1. FENCE POSTS SHALL BE SPACED 8 FEET CENTER TO CENTER OR CLOSER. THEY SHALL EXTEND AT LEAST 2 FEET INTO GROUND AND EXTEND AT LEAST 2 FEET ABAOVE GROUND. POSTS SHALL BE CONSTRUCTED OF HARDWOOD WITH A MINIMUM DIAMETER THICKNESS OF

2. A METAL FENCE WITH 6 INCH OR SMALLER OPENINGS AND AT LEAST 2 FEET HIGH MAY BE UTILIZED, FASTENED TO THE FENCE POSTS, TO
PROVIDE REINFORCEMENT AND SUPPORT TO THE GEOTEXTILE FABRIC WHERE SPACE FOR OTHER PRACTICES IS LIMITED AND HEAVY SEDIMENT LOADING IS EXPECTED.

3. A GEOTEXTILE FABRIC, RECOMMENDED FOR SUCH USE BY THE MANUFACTURER, SHALL BE BURIED AT LEAST 6 INCHES DEEP IN THE GROUND.

THE FABRIC MUST BE SECURELY FASTENED TO THE POSTS USING A SYSTEM CONSISTING OF METAL FASTENERS (NAILS OR

HIGH STRENGTH REINFORCEMENT MATERIAL (NYLON WEBBING, GROMMETS, WASHERS, ETC.) PLACED BETWEEN THE FASTENER AND FABRIC. THE FASTENING SYSTEM SHALL RESIST TEARING AWAY FROM THE POST. THE FABRIC SHALL INCORPORATE A DRAWSTRING

IN THE TOP
PORTION OF THE FENCE FOR ADDED STRENGTH.

*PERMANENT SEEDING NOTES:

RESTORATION OF GRASSED AND CULTIVATED AREAS:

RESIDEATION OF GRASSED AND COULTWATED AREAS:
BEFORE REPLACING TOPSOIL, THE SUBGRADE SHALL BE SCARIFIED TO A DEPTH OF THREE (3) INCHES, ALL LUMPS, STONES, AND
FOREIGN MATERIALS REMOVED, AND THE SUBFACE RAKED TO A UNIFORM GRADE. TOPSOIL SHALL THEN BE SPREAD, RAKED, AND
ROLLED TO FORM AN EVEN SURFACE WITH EXISTING GRADE. IF SUFFICIENT TOPSOIL IS NOT OBTAINED FROM STRIPPING THE ORIGINAL AREAS DISTURBED, THE CONTRACTOR SHALL FURNISH ADDITIONAL MATERIAL AT NO ADDITIONAL COST.

THE GRASSED AREAS SHALL THEN BE LIMED, FERTILIZED AND SEEDED. LIME SHALL BE GROUND AGRICULTURAL LIMESTONE, 50% CALCIUM CARBONATE EQUIVALENT AND SHALL BE SPREAD AT THE RATE OF 90 LBS PER 1000 SQUARE FEET. FERTILIZER SHALL BE APPROVED 10—20-10 COMMERCIAL FERTILIZER, SPREAD AT THE RATE OF 1.1 LBS PER SQUARE FEET. TEMPORARY SEED APPLIED AT THE RATE OF 0.5 LBS PER 1000 SQUARE FEET AND THE FINISHED SURFACE LIGHTLY RAKED AND ROLLED SMOOTH.

THE CONTRACTOR SHALL PROTECT ALL SEEDED SURFACES BY MULCHING WITH SMALL GRAIN STRAW, OR HAY WITH A LIQUID MULCH BINDER APPLIED AT A RATE OF 70-90 LBS PER 1DOO SQUARE FEET AND SHALL TEND AND WATER ALL SEEDED AREAS UNTIL A SATISFACTORY GROWTH HAS BEEN ESTABLISHED. AREAS WHICH FAIL TO SHOW A SATISFACTORY GROWTH SHALL BE RESEEDED, FERTILIZED AND MULCHED UNTIL FULLY SATISFACTORY GROWTH IS ACHIEVED.

*SEE SPECIFICATIONS FOR PERMANENT SEEDING REQUIREMENTS

PERMANENT SEEDING SPECIFICATIONS:

SEEDING MIXTURE SHALL CONSIST OF THE FOLLOWING

RATE IN LBS PER 1000 S.F. SEED TYPE HARD FESCUE PERENNIAL RYEGRASS KENTUCKY BLUEGRASS (BLUE) 0.9

SILT FENCE DETAIL

NOT TO SCALE



WILLISTOWN TOWNSHIP PUMPING STATION #3 CONTRACT 2013-01

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PUMPING STATION

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MISC. **DETAILS**

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